

ENGINEERED PERFORMANCE STANDARDS

BOOK NUMBER - 14

WHARFBUILDING



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EPS SUPPLEMENTAL DATA
CRAFT DELAY ALLOWANCE, JOB PREPARATION

CRAFT	JOB PREP	CRAFT DELAY SINGLE	ALLOW. MULTI
BOILER WORK	.4	23	33
CARPENTRY - GENERAL	.3	15	20
CARPENTRY - ROOFING	.6	20	25
COOLING/VENT/REFER.	.3	15	18
ELECTRICAL & ELECTRONIC	.3	16	20
HAZARDOUS WORK (ADD TO JP)	.2	--	--
HEATING	.3	17	21
JANITORIAL	.3	11	13
MACHINE SHOP	.3	23	24
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MASONRY - GENERAL	.4	15	20
- W/ PURCH. CONC.	.4	19	22
MOVING AND RIGGING	.3	28	40
PAINT - GENERAL	.2	16	17
- SPRAY	.2	17	19
PEST CONTROL	.3	14	17
PIPEFITTING - INTERIOR	.3	15	20
- EXTERIOR	.3	18	25
PLUMBING - INTERIOR	.3	17	20
- EXTERIOR	.3	15	20
ROADS & GRNDS - GENERAL	.3	16	20
- LABORERS	.3	15	20
SHEETMETAL	.3	15	20
STRUC IRON & WELD - FIELD	.3	17	20
- SHOP	.6	17	22
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:
: FENDER/DOLPHIN PILES: Remove with a Floating Crane.
: Task includes: securing the pile, bolt removal, and asiding the
: pile to the barge or pier. The distance between locations is
: defined as one move of 48 ft. A distance between work areas of
: of 96 ft. equates to two additional locations, (96/48=2), or a
: total of three locations. 144 ft. between locations equates to
: three additional locations, (four total), etc.
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TASK TIME STANDARDS LISTING

ZT 001	(remove) PILE-broken ABOVE water line	includes remove cement from bolt hole.
ZT 005	(remove) PILE-broken ABOVE water line	includes no cement removal from bolt hole.
ZT 002	(remove) PILE-broken BELOW water line	includes remove cement from bolt hole.
ZT 008	(remove) PILE-broken BELOW water line	includes no cement removal from bolt hole.

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 001	Remove broken fender/dolphin piles w/ floating crane; piles are broken above the water line; task time includes securing the pile, cement and bolt removal, and asiding the pile to the barge.	
	000.58900 hours per pilings to remove	
	000.60000 hours per additional moves with the floating crane	
ZT 005	Remove broken fender/dolphin piles with a floating crane; piles broken above the water line; task time includes securing the pile; removing the bolt (no cement removal); and asiding the pile to the barge.	
	000.46900 hours per pilings to remove	
	000.60000 hours per additional moves with the floating crane	
ZT 002	Remove broken fender/dolphin piles w/ floating crane; piles are broken below the water line; task time includes securing the pile, cement and bolt removal, and asiding the pile to the barge.	
	000.52400 hours per pilings to remove	
	000.60000 hours per additional moves with the floating crane	

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 008 Remove broken fender/dolphin piles with a floating crane; piles broken below the water line; task time includes securing piles, removing the bolt (no cement removal), and asiding the pile to the barge.

000.40400 hours per pilings to remove

000.60000 hours per additional moves with the floating crane

FENDER PILES:

Remove

w/

Mobile Crane

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:
: FENDER PILES: Remove with Mobile Crane
: Task includes: securing the pile, bolt removal, and asiding the
: pile to the pier. The distance between locations is defined as
: one move of 30 ft. A distance between work areas of 60 ft. will
: equate to two additional locations, (60/30=2), for a total of
: three locations. 90 ft. between locations is three additional
: locations, (four total), etc.
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TASK TIME STANDARDS LISTING

ZT 003	(remove) PILE-broken ABOVE water line	includes remove cement from bolt hole.
ZT 006	(remove) PILE-broken ABOVE water line	includes NO cement removal from bolt hole.
ZT 004	(remove) PILE-broken BELOW water line	includes remove cement from bolt hole.
ZT 007	(remove) PILE-broken BELOW water line	includes NO cement removal from bolt hole.

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 003	Remove broken fender piles w/ mobile crane; piles broken above the water line; task time includes securing the pile, cement and bolt removal, and asiding the pile to the pier.
	000.58900 hours per pilings to remove
	000.08600 hours per additional moves with the mobile crane
ZT 006	Remove broken fender piles with a mobile crane; piles broken above the water line; task time includes securing the pile, removing the bolt (no cement removal); and asiding the pile to the pier.
	000.46900 hours per pilings to remove
	000.08600 hours per additional moves with the mobile crane
ZT 004	Remove broken fender piles with a mobile crane; piles broken below the water line; task includes securing the pile, cement and bolt removal, and asiding the pile to the pier.
	000.52400 hours per pilings to remove
	000.08600 hours per additional moves with the mobile crane

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 007 Remove broken fender piles with a mobile crane; pile broken below the water line; task time includes securing the pile, removing the bolt (no cement removal); and asiding the pile to the pier.

000.40400 hours per pilings to remove

000.08600 hours per additional moves with the mobile crane

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:
: FENDE/DOLPHIN PILES: Drive new piles with a Floating Crane.
: Notes: Drive piles with a single or double hoist.
: For fender piles at various locations; task time includes
: timber preparation, inspection, installation and asiding pile
: parts. The distance between locations is defined as one move of
: 48 ft. A distance between work areas of 96 ft. equates to two
: additional locations (96/48=2), or a total of three locations;
: 144 ft. between work area will be three additional locations, or
: a total of four locations, etc.
:
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TASK TIME STANDARDS LISTING

ZT 009 PILE (Drive)new piles with a DOUBLE hoisted FLOATING CRANE.

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 009 Install new wooden fender/dolphin piles using a floating crane (two-hoisted pile driver), task time includes timber preperatio inspection, installation, and asiding excess pile parts.

001.14200 hours per pilings to drive in

000.60000 hours per additional moves with the floating crane

FENDER PILES:

Drive new piles w/

Mobile Crane

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:
: FENDER PILES: Drive new piles with a Mobile Crane.
: Notes: Drive piles with a single or double hoist crane.
: For fender piles at various locations; task time includes
: timber preparation, inspection, installation, and asiding pile
: parts. The distance between locations is defined as on move
: of 30 ft. A distance between work areas of 60 ft. would equate
: to two additional locations (60/30=2) or a total of three
: locations; 90 ft. equates to three additional locations, or a
: total of four loactions, etc.
:
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:

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TASK TIME STANDARDS LISTING

ZT 011 PILE: (Drive) new pile with a SINGLE hoisted MOBILE CRANE.
 ZT 010 PILE: (Drive) new pile with a DOUBLE hoisted MOBILE CRANE.

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 011 Install new wooden fender piles using a mobile crane with
 a single-hoisted pile driver; task time includes timber
 preparation, inspection, installation and asiding excess pile
 parts.

001.49600 hours per pilings to drive in

000.08600 hours per additional moves with the mobile crane

ZT 010 Install new wooden fender piles using a mobile crane with a
 two-hoisted pile driver; task includes timber preparation,
 inspection, installation, and asiding excess pile parts.

001.14200 hours per pilings to drive in

000.08600 hours per additional moves with the mobile crane

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:
: CHOCK BLOCKS: Remove, Install with a Floating Crane
: Notes: For chock blocks at various locations; For removing chock
: blocks task times includes bolt removal, prying loose the chock
: blocks and asiding the chock blocks to the barge. Installing
: the chock block includes all measuring and drilling operations
: hoisting and installation of the new chock. Distances between
: locations is defined as one move of 48 ft. A distance between
: work areas of 96 ft., equates to two additional locations
: (96/48=2) or a total of three locations; 144 ft. between work
: locations equates to three additional locations, or a total of
: four locations, etc.
:
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:

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TASK TIME STANDARDS LISTING

ZT 012 (remove) CHOCK BLOCKS- includes remove cement from bolt
 ZT 013 (remove) CHOCK BLOCKS- includes NO cement removal from bolt hole
 ZT 020 (fabricate & install) CHOCK BLOCKS-

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 012 Remove chocks from fenders using a floating crane, task time includes removal of cement and bolts, prying loose the chock block, and asiding the chock block to the barge.

000.56300 hours per chock blocks to remove

000.60000 hours per additional moves with the floating crane

ZT 013 Remove chocks from fenders using a floating crane; task time includes bolt removal (no cement removal required), prying loose the chock blocks, and asiding the chock blocks to the barge.

000.34400 hours per chock blocks to remove

000.60000 hours per additional moves with the floating crane

ZT 020 Fabricate and install chock blocks on a fender system using a floating crane, task time includes all measuring, drilling and cutting operations.

000.60900 hours per chock blocks to install

000.60000 hours per additional moves with the floating crane

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:
: CHOCK BLOCKS: Remove, Install with a Mobile Crane.
: Notes: For chock blocks at various locations; Removing chock
: blocks task time includes removal of bolts, prying loose the
: chock blocks, and asiding the chock blocks to the pier.
: Installing chock blocks includes all measuring and drilling
: operations, hoisting and installations of the new chocks. The
: distance between locations is defined as one move of 48 ft. A
: distance between work areas of 96 ft. equates to two additional
: locations (96/48=2), or a total of three locations; 144 ft.
: between locations will be three additional locations, or a total
: of four locations, etc.
:
:
:

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TASK TIME STANDARDS LISTING

ZT 014 (remove) CHOCK BLOCKS- includes remove cement from bolt hole
 ZT 015 (remove) CHOCK BLOCKS- includes no cement removal from bolt hole
 ZT 021 (fabricate & install) CHOCK BLOCKS-

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 014 Remove chocks from fenders using a mobile crane; task time includes the removal of cement and bolts, prying loose the chock blocks, and asiding the chock blocks to the pier.

000.56300 hours per chock blocks to remove

000.08600 hours per additional moves with the mobile crane

ZT 015 Remove chock blocks from fenders using a mobile crane; task time includes bolt removal (no cement removal required), prying loos chock blocks, and asiding the chock blocks to the pier.

000.33400 hours per chock blocks to remove

000.08600 hours per additional moves with the mobile crane

ZT 021 Fabricate and install chock blocks on a fender system using a mobile crane, task time includes all measuring, drilling, and cutting operations.

000.60900 hours per chock blocks to install

000.08600 hours per additional moves with the mobile crane

WALES:

Remove, Install w/

Floating Crane

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:
: WALES: Remove, Install with a Floating Crane
: Notes: For wales at various locations. Removing wales task time
: includes prying loose the wale and asiding the wale to the
: barge. Installing wales includes all measuring and drilling
: operations, hoisting and installation of the new wales. The
: distance between locations is defined one move of 48 ft. A
: distance between work areas of 96 ft. equates to two additional
: locations (96/48=2), or a total of three locations; 144 ft.
: between locations will be three additional locations, or a total
: of four locations, etc.
:
:
:

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TASK TIME STANDARDS LISTING

ZT 016 (remove) WALES with a Floating Crane.
 ZT 017 (install) WALES with a Floating Crane.

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 016 Remove wales from pier using a floating crane, task time includes prying loose the wale and asiding to the barge.

000.40400 hours per wales to remove

000.60000 hours per additional moves with the floating crane

ZT 017 Install wales using a floating crane; task time includes all measuring and drilling operations, hoisting and installatio of the new wales.

000.43600 hours per wales to remove

000.60000 hours per additional moves with the floating crane

WALES:

Remove, Install w/

Mobile Crane

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:
: WALES: Remove, Install with a Mobile Crane.
: For wales at various locations; removal includes prying loose
: the wales and asiding the wales to the pier; installation
: includes all measuring and drilling operations, hoisting, and
: installation of all new wales. the distance between locations is
: defined as one move of 30 ft. A distance between work areas of
: 60 ft. equates to two additional locations, (60/30=2), or a
: of three locations. 90 ft. between locations will be three
: additional locations, or four total, etc.
:
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:

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TASK TIME STANDARDS LISTING

ZT 018 (remove) WALES with a Mobile crane.
 ZT 019 (install) WALES with a Mobile crane.

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 018 Remove wales from piers using a mobile crane; task time includes prying loose the wale and asiding the wale to the pier

000.40400 hours per wales to remove

000.08600 hours per additional moves with the mobile crane

ZT 019 Install wales using a mobile crane; task time includes all measuring and drilling operations, hoisting and installation of new wales.

000.34600 hours per wales to install

000.08600 hours per additional moves with the mobile crane

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: METAL CAPS; Install, Replace on Fender or Dolphin Piles. tall on
: Notes: Task times include the time required to walk between
: piles when replacing caps on fender piles. The task time for
: dolphin piles provides time for replacing caps at a single
: dolphin. No time is included for movement between dolphins.
:
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:

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TASK TIME STANDARDS LISTING

ZT 022	ROOFING PAPER & METAL CAPS	(install)on	Fender	piles.
ZT 024	ROOFING PAPER & METAL CAPS	(install)on	Dolphin	piles.
ZT 023	ROOFING PAPER & METAL CAPS	(replace)on	Fender	piles.
ZT 025	ROOFING PAPER & METAL CAPS	(replace)on	Dolphin	piles.

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 022	Install roofing paper and metal caps on fender piles.
	000.04200 hours per JOB SETUP TIME
	000.14293 hours per fender piles
ZT 024	Install roofing paper and metal caps on dolphin piles.
	000.04350 hours per JOB SETUP TIME
	000.14283 hours per dolphin piles
ZT 023	Replace damaged roofing paper and metal caps on fender piles.
	000.04200 hours per JOB SETUP TIME
	000.22093 hours per fender piles
ZT 025	Replace damaged roofing paper and metal caps on dolphin piles.
	000.04350 hours per JOB SETUP TIME
	000.20193 hours per dolphin piles

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:
: HEAVY TIMBER CONSTRUCTION: Spiked, Open and Close Access Holes.
: Notes:Open and close access holes in decking, piers, and wharfs
: constructed of 4" x 12" timbers. Time is allowed for cutting of
: timbers with a power saw, pulling spikes, reusing timbers, and
: driving spikes with an air hammer. Where covered with a
: bituminous slab, time has been allowed for removal and
: resurfacing of a 3" slab.
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:

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TASK TIME STANDARDS LISTING

ZT 026	(open & close) ACCESS HOLE	4ft x4ft	hole, no bituminous slab
ZT 027	(open & close) ACCESS HOLE	4ft x8ft	hole, no bituminous slab
ZT 028	(open & close) ACCESS HOLE	5ft x16ft	hole, no bituminous slab
ZT 029	(open & close) ACCESS HOLE	4ft x4ft	hole, 3" bituminous slab
ZT 030	(open & close) ACCESS HOLE	4ft x8ft	hole, 3" bituminous slab
ZT 031	(open & close) ACCESS HOLE	5ft x16ft	hole, 3" bituminous slab

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 026	Decking, piers and wharves, 4" x 12" timbers; open and close 4'x4' holes for work access. Reuse timbers.
	000.72400 hours per access holes
ZT 027	Decking, piers, and wharves, 4" x 12" timbers; open and close 4ft'x8ft holes for work access. Reuse timbers.
	001.02300 hours per access holes
ZT 028	Decking, piers, and wharves, 4" x 12" timbers; open and close 5ft x16ft holes for work access. Reuse timbers.
	002.07600 hours per access holes
ZT 029	Decking, piers, and wharves, 4" x 12" timbers with 3" bituminous slab cover; open and close 4ft x 4ft holes for work access. Reuse timbers.
	001.34560 hours per access holes
ZT 030	Decking, piers, and wharves, 4"x12" timbers with 3" bituminous slab cover; open and close 4ft x8ft holes for work access. Reuse timbers.
	002.36620 hours per access holes

ZT 031 Decking, piers, and wharves, 4"x12" timbers with 3" bituminous
 slab cover; open and close 5ft x16ft holes for work access.
 Reuse timbers.

004.68200 hours per access holes

:
: WOOD CAMEL: Repair and Replace.
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TASK TIME STANDARDS LISTING

ZT 032 WOOD CAMEL FLOTATION CELLS: (Replace)-including bottom decking
ZT 033 WOOD CAMEL FENDER: (Repair) 20ft side fender timbers.
ZT 034 WOOD CAMEL FENDER: (Repair) 8ft end fender timbers.
ZT 035 WOOD CAMEL: (Repair) 20ft center timber.
ZT 036 WOOD CAMEL: (Repair) 8ft end/center timber, includes
fender replacement.
ZT 037 WOOD CAMEL: (Remove)-rod for rethreading.
ZT 038 WOOD CAMEL: (Repair)-internal cross beam.
ZT 039 WOOD CAMEL: (Remove)-nut with acetylene torch.

EPS TASK TIME STANDARDS - DESCRIPTIONS AND UNIT HOURS

ZT 032 Wood camel floatation cell repair.

015.66000 hours per cell to repair

ZT 033 Wood camel side fender repair; task time includes replace
fenders, building support legs for new fenders.

005.53980 hours per side fenders to repair

ZT 034 Wood camel end fender repair; task time includes replace
fenders and installation of new fenders.

001.91000 hours per Repair end fender

ZT 035 Wood camel 20ft center timber repair; task time includes replace
fenders.

000.20900 hours per center timbers to repair

ZT 036 Wood camel end/center timber repair; task time includes
replace timber.

009.42000 hours per end/center timber to repair

ZT 037 Wood camel threaded rod repair; task time includes complete
removal of threaded rod.

001.91000 hours per threaded rod to repair

ZT 038 Wood camel internal cross beam repair; task time includes removal and installation of cross beams.

000.71500 hours per occurrences

ZT 039 Wood camel, nut removal with acetylene torch; task time includes use of acetylene torch to remove frozen nuts from camel.

000.28900 hours per JOB SETUP TIME

000.01500 hours per nuts burned off

TASK TIME STANDARDS DEVELOPMENT BACKUP

- ZT 001 1 REMOVE SEALING CEMENT FROM BOLT HOLES WITH AIR CHISEL FOR 1 PILE; 1 BOLT PER PILE $(.011 + (1)(.109))$
2 MOVE BOOM TO BROKEN PILE, ATTACH TO AND REMOVE SLING FROM PILE; FOR EACH PILE
3 BREAK NUT OFF BOLT WITH AIR DRIVER AND WRENCH FOR 1 PILE; 1 BOLT PER PILE $(.081 + (1)(.054))N$
4 REMOVE BOLT FROM PILE WITH CRANE
5 REMOVE AND ASIDE TOP PORTION OF PILE TO MATERIALS BARGE OR PIER FOR EACH PILE
6 PULL BOTTOM PORTION OF PILE, RAISE AND ASIDE TO MATERIALS BARGE OR PIER
7 MOVE CRANE BETWEEN LOCATIONS; EACH MOVE IS 48FT
- ZT 002 1 REMOVE SEALING CEMENT FROM BOLT HOLES WITH AIR CHISEL FOR 1 PILE; 1 BOLT HOLE PER PILE $(.011 + (1)(.011))$
2 MOVE BOOM TO BROKEN PILE; ATTACH TO AND REMOVE SLING, FOR EACH PILE
3 BREAK NUT OFF BOLT WITH AIR DRIVER AND WRENCH FOR EACH PILE; 1 BOLT PER PILE $(.081 + (1)(.054))N$
4 REMOVE BOLT FROM PILE WITH CRANE FOR EACH PILE
5 PULL FENDER OR DOLPHIN PILE; RAISE AND ASIDE TO MATERIALS BARGE OR PIER
6 MOVE CRANE BETWEEN LOCATIONS, EACH MOVE = 48FT
- ZT 003 1 REMOVE SEALING CEMENT FROM BOLT HOLES WITH AIR CHISEL FOR EACH PILE; 1 BOLT HOLE PER PILE $(.011 + (1)(.011))$
2 MOVE BOOM TO BROKEN PILE, ATTACH TO AND REMOVE SLING FOR EACH PILE
3 BREAK OFF BOLT WITH AIR DRIVER AND WRENCH FOR EACH PILE; 1 BOLT PER PILE $(.081 + (1)(.054))N$
4 REMOVE BOLT FROM PILE WITH CRANE
5 REMOVE AND ASIDE TOP PORTION OF PILE TO PIER
6 PULL BOTTOM PORTION OF PILE, RAISE AND ASIDE TO PIER
7 MOVE CRANE BETWEEN LOCATIONS, EACH MOVE IS 30FT
- ZT 004 1 REMOVE SEALING CEMENT FROM BOLT HOLES WITH AIR CHISEL FOR EACH PILE; 1 BOLT HOLE PER PILE $(.011 + (1)(.011))$
2 MOVE BOOM TO BROKEN PILE, ATTACH TO AND REMOVE SLING
3 BREAK OFF BOLT WITH AIR DRIVER AND WRENCH FOR EACH PILE; 1 BOLT PER PILE $(.018 + (1)(.054))N$
4 REMOVE BOLT FROM PILE WITH CRANE
5 PULL FENDER PILE, RAISE AND ASIDE TO PIER
6 MOVE CRANE BETWEEN LOCATIONS, EACH MOVE IS 30FT
- ZT 005 1 MOVE BOOM TO BROKEN PILE, ATTACH TO AND REMOVE SLING FROM PILE FOR EACH PILE
2 BREAK NUT OFF BOLT WITH AIR DRIVER AND WRENCH FOR EACH PILE; 1 BOLT PER PILE $(.081 + (1)(.054))N$
3 REMOVE BOLT FROM PILE WITH CRANE
4 REMOVE AND ASIDE TOP PORTION OF PILE TO MATERIALS BARGE OR PIER
5 PULL BOTTOM PORTION OF PILE, RAISE AND ASIDE TO MATERIALS BARGE OR PIER
6 MOVE CRANE BETWEEN LOCATIONS; EACH MOVE IS 48FT

ZT 006 1 MOVE BOOM TO BROKEN PILE, ATTACH TO AND REMOVE SLING FROM PILE
2 BREAK NUT OFF BOLT WITH AIR DRIVER AND WRENCH FOR EACH PILE; 1 BOLT PER PILE $((.081) + (1)(.054))N$
3 REMOVE BOLT FROM PILE WITH CRANE
4 REMOVE AND ASIDE TOP PORTION OF PILE TO PIER
5 PULL BOTTOM PORTION OF PILE, RAISE AND ASIDE TO PIER
6 MOVE MOBILE CRANE BETWEEN LOCATIONS; EACH MOVE IS 30FT

ZT 007 1 MOVE BOOM TO BROKEN PILE, ATTACH TO AND REMOVE SLING FROM PILE
2 BREAK NUT OFF BOLT WITH AIR DRIVER AND WRENCH FOR EACH PILE; 1 BOLT PER PILE $(.081 + (1)(.054))N$
3 REMOVE BOLT FROM PILE WITH CRANE
4 PULL FENDER PILE, RAISE AND ASIDE TO PIER
5 MOVE MOBILE CRANE BETWEEN LOCATIONS; EACH MOVE IS 30FT

ZT 008 1 MOVE BOOM TO BROKEN PILE; ATTACH TO AND REMOVE SLING FROM PILE
2 BREAK NUT OFF BOLT WITH AIR DRIVER FOR EACH PILE; 1 BOLT PER PILE $(.081 + (1)(.054))N$
3 REMOVE BOLT FROM PILE WITH CRANE
4 PULL FENDER OR DOLPHIN PILE, RAISE AND ASIDE TO BARGE OR PIER
5 MOVE FLOATING CRANE BETWEEN LOCATIONS; EACH MOVE IS 48FT

ZT 009 1 CUT OFF SMALL END OF PILE 2 CUTS PER PILE $(.051 + (2)(.023))N$
2 CUT OFF LARGE END OF PILE (CHAIN SAW) TO RECEIVE HAMMER; 4 CUTS PER PILE $(.051 + (4)(.023))N$
3 HOIST: SWING TO POSITION, LOWER PILE AND HAMMER, AND RETURN HOOK
4 INSPECT PILES FOR PROPER POSITION AND DISPLACEMENT AND SECURE FOR DRIVING WITH MOORING ROPE USE WINCH
5 DRIVE ONE FENDER OR DOLPHIN PILE USING A STEAM OR DIESEL HAMMER
6 DRILL 1-1/8" DIAMETER HOLE THROUGH EACH PILE WITH AIR DRILL; 1 HOLE FOR EACH PILE $(.038 + (1)(.018))$
7 COUNTERBORE 4" X 4" DEEP HOLE IN EACH PILE, 1 HOLE FOR EACH PILE $(.038 + (1)(.054))N$
8 SECURE PILE TO WALES WITH BOLTS USING AIR DRIVER AND WRENCH
9 CUT OFF EXCESS PILE WITH CHAIN SAW 1 CUT FOR EACH PILE $(.051 + (1)(.023))N$
10 HOIST EXCESS PILE AND ASIDE TO BARGE OR PIER
11 MOVE FLOATING CRANE BETWEEN LOCATIONS; EACH MOVE IS 48FT

ZT 010 1 CUT OFF SMALL END OF PILE FOR EACH PILE; 2 CUTS PER PILE $(.051 + (2)(.023))N$
2 CUT OFF LARGE END OF PILE (CHAIN SAW) TO RECEIVE HAMMER FOR EACH PILE; 4 CUTS PER PILE $(.051 + (4)(.023))N$
3 HOIST: SWING TO POSITION, LOWER PILE AND HAMMER, AND RETURN HOOK
4 INSPECT PILES FOR PROPER POSITION AND DISPLACEMENT AND SECURE FOR DRIVING WITH MOORING ROPE USE WINCH
5 DRIVE FENDER PILES USING A STEAM OR DIESEL HAMMER
6 DRILL 1-1/8" DIAMETER HOLE THROUGH PILE WITH AIR DRILL; 1 HOLE FOR EACH PILE $(.038 + (1)(.018))N$
7 COUNTERBORE 4" X 4" DEEP HOLE IN PILE, 1 HOLE FOR EACH PILE $(.038 + (1)(.054))N$
8 SECURE PILE TO WALES WITH BOLTS USING AIR DRIVER AND WRENCH
9 CUT OFF EXCESS PILE WITH CHAIN SAW 1 CUT FOR EACH PILE $(.051 + (1)(.023))N$
10 HOIST EXCESS PILE AND ASIDE TO PIER
11 MOVE MOBILE CRANE BETWEEN LOCATIONS; EACH MOVE IS 30FT

ZT 011 1 CUT OFF SMALL END OF PILE ; 2 CUTS PER PILE $(.051 + (2)(.023))N$
2 CUT OFF LARGE END OF PILE (CHAIN SAW) TO RECEIVE HAMMER; 4 CUTS PER PILE $(.051 + (4)(.023))N$
3 HOIST: SWING TO POSITION, LOWER PILE AND RETURN HOOK
4 INSPECT PILE FOR PROPER POSITION AND DISPLACEMENT AND SECURE FOR DRIVING WITH ROPE
5 HOIST: SWING TO POSITION, LOWER HAMMER, AND RETURN HOOK
6 DRIVE FENDER PILES USING A STEAM OR DIESEL HAMMER
7 DRILL 1-1/8" DIAMETER HOLE THROUGH EACH PILE WITH AIR DRILL, 1 HOLE FOR EACH PILE $(.038 + (1)(.018))N$
8 COUNTERBORE 4" DIAMETER X 4" DEEP HOLE IN EACH PILE; 1 HOLE FOR EACH PILE $(.038 + (1)(.054))N$
9 SECURE PILE TO WALES WITH BOLTS USING AIR DRIVER AND WRENCH
10 CUT OFF EXCESS PILE WITH CHAIN SAW 1 CUT PER PILE $(.051 + (1)(.023))N$
11 HOIST EXCESS PILE AND ASIDE TO PIER
12 MOVE MOBILE CRANE BETWEEN LOCATIONS; EACH MOVE IS 30FT

ZT 012 1 REMOVE SEALING CEMENT FROM BOLT HOLE WITH AIR CHISEL. 2 HOLES PER CHOCK $(.011 + (2)(.109))N$
2 BREAK NUT OFF BOLT WITH AIR DRIVER AND WRENCH 2 NUTS PER CHOCK $(.018 + (2)(.054))N$
3 REMOVE BOLT FROM TIMBER WITH CRANE 2 BOLTS PER CHOCK
4 SEPARATE CHOCK BLOCKS FROM WALE WITH PRYING IRON
5 PULL, RAISE, AND LOWER ASIDE CHOCK BLOCKS USING CRANE
6 REMOVE BOLTS FROM CHOCK BLOCKS WITH CLAW HAMMER
7 MOVE FLOATING CRANE BETWEEN LOCATIONS; EACH MOVE IS 48FT

- ZT 013 1 BREAK NUT OFF BOLT WITH AIR DRIVER AND WRENCH 2 NUTS PER CHOCK (.018 + (2)(.054))N
2 REMOVE BOLT FROM TIMBER WITH CRANE 2 BOLTS PER CHOCK
3 SEPARATE CHOCK BLOCKS FROM WALE WITH PRYING IRON
4 PULL, RAISE, AND LOWER ASIDE CHOCK BLOCKS USING CRANE
5 REMOVE BOLTS FROM CHOCK BLOCKS WITH CLAW HAMMER AND ASIDE TO PARTS BIN
6 MOVE FLOATING CRANE BETWEEN LOCATIONS; EACH MOVE IS 48FT
- ZT 014 1 REMOVE SEALING CEMENT FROM BOLT HOLE WITH AIR CHISEL . 2 HOLES PER CHOCK. (.011 + (2)(.109))N
2 BREAK NUT OFF BOLT WITH AIR DRIVER AND WRENCH 2 BOLTS PER CHOCK (.018 + (2)(.054))N
3 REMOVE BOLT FROM TIMBER WITH CRANE 2 BOLTS PER CHOCK
4 SEPARATE CHOCK BLOCKS FROM WALE WITH PRYING IRON
5 PULL, RAISE, AND LOWER ASIDE CHOCK BLOCKS USING CRANE
6 REMOVE BOLTS FROM CHOCK BLOCKS WITH CLAW HAMMER ASIDE TO PARTS BIN
7 MOVE MOBILE CRANE BETWEEN LOCATIONS; EACH MOVE IS 30FT
- ZT 015 1 BREAK NUT OFF BOLT WITH AIR DRIVER AND WRENCH 2 NUTS PER CHOCK (.018 + (2)(.054))N
2 REMOVE BOLT FROM TIMBER WITH CRANE 2 BOLTS PER CHOCK
3 SEPARATE CHOCK BLOCKS FROM WALE WITH PRYING IRON
4 PULL, RAISE, AND LOWER ASIDE CHOCK BLOCKS USING CRANE
5 REMOVE BOLTS FROM CHOCK BLOCKS WITH CLAW HAMMER AND ASIDE TO PARTS BIN
6 MOVE MOBILE CRANE BETWEEN LOCATIONS, EACH MOVE IS 30FT
- ZT 016 1 REMOVE NUTS FROM ANCHORED TEE BOLT WITH REVERSIBLE AIR DRIVER; 4 BOLTS PER WALE (.010 + (4)(.040))N
2 SEPARATE WALE FROM PIER USING PRYING IRON
3 RAISE WALE AND LOWER ASIDE WITH CRANE, USING PRYING IRON TO ASSIST IN REMOVAL
4 REMOVE FROM AND REINSTALL 4 BOLTS TO ANCHOR IN PIER, SECURE WITH WOODEN WEDGE
5 MOVE FLOATING CRANE BETWEEN LOCATIONS; EACH MOVE IS 48FT

- ZT 017 1 MEASURE CENTER DISTANCE OF TEE BOLT ANCHORS AND MARK ON NEW WALE FOR DRILLING; 4 BOLT HOLES PER WALE
2 HOIST WALE, MOVE TO POSITION, SET ON BOLTS, AND PUSH INTO PLACE WITH CRANE
3 INSTALL 4 NUTS AND TIGHTEN WITH AIR DRIVER FOR EACH WALE
4 MOVE FLOATING CRANE BETWEEN LOCATIONS; EACH MOVE IS 48FT
- ZT 018 1 REMOVE NUTS FROM ANCHORED TEE BOLT WITH REVERSIBLE AIR DRIVER FOR WALE; 4 BOLTS PER WALE (.010 + (4)
2 SEPARATE WALE FROM PIER USING PRYING IRON
3 RAISE WALE AND LOWER ASIDE WITH CRANE, USING PRYING IRON TO ASSIST IN REMOVAL
4 REMOVE AND REINSTALL 4 BOLTS TO ANCHOR IN PIER, SECURE WITH WOODEN WEDGE, FOR EACH WALE
5 MOVE MOBILE CRANE BETWEEN LOCATIONS; EACH MOVE IS 30FT
- ZT 019 1 MEASURE CENTER DISTANCES OF TEE BOLT ANCHORS AND MARK ON NEW WALE FOR DRILLING; 4 BOLT HOLES PER WALE
2 HOIST WALE, MOVE TO POSITION, SET ON BOLTS, AND PUSH INTO PLACE WITH CRANE
3 INSTALL 4 NUTS AND TIGHTEN WITH AIR DRIVER FOR EACH WALE
4 MOVE MOBILE CRANE BETWEEN LOCATIONS; EACH MOVE IS 30FT
- ZT 020 1 POSITION TIMBERS FOR SAWING AND DRILLING, USE CRANE
2 MARK TIMBERS FOR ANGLE CUT USING ANGLE TEMPLATE
3 SAW TWO ANGULAR CUTS INTO CHOCK BLOCK USING POWER CHAIN SAW
4 TAPER PILES TO RECEIVE CHOCK BLOCKS USING TEMPLATE AND AXE
5 SAW 2" X 4" BOARD, 2FT - 4FT LENGTHS, TWO, FOR EACH CHOCK BLOCK
6 POSITION AND NAIL TWO 2" X 4" BOARDS TO TOP SIDE OF NEW CHOCK BLOCK
7 NAIL FREE END OF TWO 2" X 4" BOARDS TO HOLD CHOCK IN POSITION FOR DRILLING
8 WITH AIR TOOL; DRILL 1" DIAMETER HOLE THROUGH TIMBER; TWO HOLES FOR EACH CHOCK (.038 + (2)(.018))N
9 WITH AIR TOOL, COUNTERBORE 4" X 4" HOLE IN TIMBER; TWO HOLES IN EACH CHOCK BLOCK ((.038) + (2)(.054)
10 HOIST CHOCK BLOCK, MOVE TO POSITION, AND PUSH INTO PLACE WITH CRANE
11 SECURE CHOCK BLOCKS WITH TWO BOLTS EACH, USING AIR DRIVER AND WRENCH
12 REMOVE TWO 2" X 4" BOARDS FROM CHOCK BLOCK AND WALE, AND ASIDE FOR EACH CHOCK BLOCK
13 MOVE FLOATING CRANE BETWEEN LOCATIONS; EACH MOVE IS 48FT

ZT 021 1 POSITION TIMBERS FOR SAWING AND DRILLING, USE CRANE
2 MARK TIMBERS FOR ANGLE CUT USING ANGLE TEMPLATE
3 SAW TWO ANGULAR CUTS INTO CHOCK BLOCK USING POWER CHAIN SAW
4 TAPER PILES TO RECEIVE CHOCK BLOCKS USING TEMPLATE AND AXE
5 SAW 2" X 4" BOARD, 2FT - 4FT LENGTHS, TWO, FOR EACH CHOCK BLOCK
6 POSITION AND NAIL TWO 2" X 4" BOARDS TO TOP SIDE OF EACH NEW CHOCK BLOCK
7 NAIL FREE END OF TWO 2" X 4" BOARDS TO HOLD CHOCK IN POSITION FOR DRILLING FOR CHOCK
8 WITH AIR TOOL; DRILL 1" DIAMETER HOLE THROUGH TIMBER; TWO HOLES FOR EACH CHOCK (.038 + (2)(.018))N
9 WITH AIR TOOL, COUNTERBORE 4" X 4" HOLE IN TIMBER; TWO HOLES IN EACH CHOCK BLOCK (.038 + (2)(.054))N
10 HOIST CHOCK BLOCKS, MOVE TO POSITION, PUSH INTO PLACE WITH CRANE
11 SECURE CHOCK BLOCKS WITH TWO BOLTS EACH, USING AIR DRIVER AND WRENCH
12 REMOVE TWO 2" X 4" BOARDS FROM CHOCK BLOCK AND WALE, AND ASIDE
13 MOVE MOBILE CRANE BETWEEN LOCATIONS, EACH MOVE IS 30FT

ZT 022 1 INSTALL ROOFING PAPER AND METAL CAPS ON FENDER PILE .042 + N(.14293)

ZT 023 1 REMOVE OLD ROOFING PAPER AND METAL CAP AND INSTALL NEW CAP ON FENDER PILE .042 + N(.22093)

ZT 024 1 INSTALL ROOFING PAPER AND METAL CAP ON DOLPHIN PILE .0435 + N(.14283)

ZT 025 1 REMOVE OLD ROOFING PAPER AND METAL CAP AND INSTALL NEW CAP ON DOLPHIN PILES .0435 + N(.20193)

ZT 026 1 MEASURE, MARK, AND POWER SAW 4" X 12" PLANKS, 8 CUTS FOR EACH 4FT X 4FT ACCESS HOLE (.044 + (8)(.011)
2 CHOP WITH ADZ TO EXPOSE SPIKE HEADS, 20 SPIKES FOR EACH ACCESS HOLE (.006 + 20(.011))N
3 PULL SPIKE WITH CLAW BAR, 20 SPIKES FOR EACH ACCESS HOLE (.001 + 20(.003))N
4 PRY TO LOOSEN AND PRY OFF PIECE OF LUMBER WITH BAR 4 PIECES FOR EACH ACCESS HOLE (.006 + (4)(.021))N
5 HANDLE PLANKS TO STACK AND TO POSITION FOR INSTALLING; 3 - 30 POUNDS; HANDLE 4 PIECES TWICE FOR EACH
6 OBTAIN, SET AND DRIVE 8 - 3/16" X 8" SPIKES WITH AIR HAMMER; A TOTAL OF 24 SPIKES FOR EACH ACCESS HO

ZT 027 1 MEASURE, MARK, AND POWER SAW 4" X 12" PLANKS, 8 CUTS FOR EACH 4FT X 4FT ACCESS HOLE (.044 + (8)(.011))N
 2 CHOP WITH ADZ TO EXPOSE SPIKE HEADS; 32 SPIKES FOR EACH ACCESS HOLE (.006 + (32)(.011))N
 3 PULL SPIKE WITH CLAW BAR; 32 SPIKES FOR EACH ACCESS HOLE (.001 + (32)(.003))N
 4 PRY TO LOOSEN AND PRY OFF PIECE OF LUMBER WITH BAR 6 PIECES FOR EACH ACCESS HOLE (.006 + (6)(.021))N
 5 HANDLE PLANKS TO STACK AND TO POSITION FOR INSTALLING; 3-30 POUNDS; HANDLE 6 PIECES TWICE FOR EACH ACCESS HOLE
 6 OBTAIN, SET, AND DRIVE 8 - 3/16" X 8" SPIKES WITH AIR HAMMER; A TOTAL OF 32 SPIKES FOR EACH ACCESS HOLE

ZT 028 1 MEASURE, MARK, AND POWER SAW, 4" X 12" PLANKS; 10 CUTS FOR EACH ACCESS HOLE (.044 + (10)(.011))N
 2 CHOP WITH ADZ TO EXPOSE SPIKE HEADS; 60 SPIKES FOR EACH ACCESS HOLE (.006 + (60)(.011))N
 3 PULL SPIKE WITH CLAW BAR; 60 SPIKES FOR EACH ACCESS HOLE (.001 + (60)(.003))N
 4 PRY TO LOOSEN AND PRY OFF PIECE OF LUMBER WITH BAR 13 PIECES FOR EACH ACCESS HOLE (.006 + (13)(.021))N
 5 HANDLING PLANKS TO STACK AND TO POSITION FOR INSTALLING; 3 - 30 POUNDS; HANDLE 9 PIECES TWICE EACH ACCESS HOLE
 6 HANDLE PLANKS TO STACK AND TO POSITION FOR INSTALLING; 2 MEN; 4 PLANKS TWICE FOR EACH ACCESS HOLE (4 PLANKS TWICE FOR EACH ACCESS HOLE)
 7 OBTAIN, SET, AND DRIVE 8 - 3/16" X 8" SPIKES WITH AIR HAMMER; A TOTAL OF 64 SPIKES FOR EACH ACCESS HOLE

ZT 029 1 BREAK UP, LOOSEN, AND LOAD ON TRUCK 1 SQ. YARD OF 3" BITUMINOUS SLAB; 3 SQUARE YARD FOR EACH ACCESS HOLE
 2 DECKING, PIERS, AND WHARFS, 4" X 12" TIMBERS; OPEN AND CLOSE 4FT X 4FT HOLES FOR WORK ACCESS; RE-USE
 3 RESURFACE WITH BITUMINOUS SLAB FOR EACH ACCESS HOLE; NUMBER OF LAYERS = 1; NUMBER OF SQUARE YARDS = 3

ZT 030 1 BREAK UP, LOOSEN AND LOAD ON TRUCK 1 SQUARE YARD 3" BITUMINOUS SLAB; 7 SQUARE YARDS FOR EACH ACCESS HOLE
 2 DECKING, PIERS, AND WHARFS, 4" X 12" TIMBERS; OPEN AND CLOSE 4FT X 8FT HOLES FOR WORK ACCESS; RE-USE
 3 RESURFACE WITH BITUMINOUS SLAB FOR EACH ACCESS HOLE; NUMBER OF LAYERS = 1; NUMBER OF SQUARE YARDS = 7

ZT 031 1 BREAK UP, LOOSEN, AND LOAD ON TRUCK 1 SQUARE YARD OF 3" THICK BITUMINOUS SLAB; 14 SQUARE YARDS FOR EACH ACCESS HOLE
 2 DECKING, PIERS, AND WHARFS, 4" X 12" TIMBERS; OPEN AND CLOSE 5FT X 16FT HOLES FOR WORK ACCESS; RE-USE
 3 RESURFACE WITH BITUMINOUS SLAB FOR EACH ACCESS HOLE; NUMBER OF LAYERS = 1; NUMBER OF SQUARE YARDS = 14

ZT 032 1 REMOVE FLOTATION MATERIAL FROM CAMEL
2 REMOVE BOTTOM DECKING FROM CAMEL
3 INSTALL FLOTATION MATERIAL
4 INSTALL BOTTOM DECKING TO FLOTATION CELL

ZT 033 1 REMOVE 20 FT. SIDE FENDER TIMBER FROM CAMEL
2 INSTALL NEW 20 FT. SIDE FENDER TO CAMEL
3 BUILD FOUR SUPPORT LEGS FOR 20 FT. FENDER TIMBER
4 REMOVE AND DISASSEMBLE LEGS FROM SIDE FENDER TIMBER
R (4 LEGS SUPPORTING 1 FENDER TIMBER)

ZT 034 1 REMOVE 8 FT. END FENDER TIMBER FROM CAMEL
2 INSTALL NEW 8 FT. END FENDER ON CAMEL

ZT 035 1 REMOVE 20 FT. CENTER TIMBER FROM CAMEL
2 INSTALL NEW 20 FT. CENTER TIMBER

ZT 036 1 REMOVE 8 FT. END OR CENTER TIMBER FROM CAMEL
2 INSTALL NEW 8 FT. END OR CENTER TIMBER

ZT 037 1 REMOVE 9FT - 6" X 1 3/4" THREADED ROD FROM CENTER
TIMBER

ZT 038 1 REMOVE INTERNAL CROSS BEAMS FROM CAMEL
2 INSTALL NEW INTERNAL CROSS BEAM TIMBER

ZT 039 1 BURN NUTS FROM PLANKING ROD .289 + N7(.015)

ZT 040 1 REMOVE SEALING CEMENT FROM BOLT HOLES WITH AIR CHI
SEL FOR EACH PILES; 1 BOLT PER PILE
2 MOVE BOOM TO BROKEN PILE, ATTACH TO AND REMOVE SLI
NG FROM PILE
3 BREAK NUT OFF BOLT WITH AIR DRIVER AND WRENCH FOR
EACH PILES, 1 BOLT PER PILE
4 REMOVE BOLT FROM PILE WITH CRANE
5 REMOVE AND ASIDE TOP PORTION OF PILE TO MATERIALS
BARGE OR PIER
6 PULL BOTTOM PORTION OF PILE, RAISE AND ASIDE TO MA
TERIALS BARGE OR PIER
7 MOVE CRANE BETWEEN LOCATIONS; EACH MOVE IS 48 FEET
8 SLING AND UNSLING PILE - WIRE SLING
9 SLING AND UNSLING PILE - MANILA SLING
10 PULL TO BREAK OFF, RAISE AND ASIDE LOWER HALF OF P
ILE
11 HOIST AND ASIDE UPPER HALF OF PILE
12 HOIST NEW PILE THROUGH DECK OPENING AND POSITION F
OR DRIVING
13 DRIVE BEARING PILE
14 ATTACH AND REMOVE SIDE DRIVING BLOCK
15 INSTALL DRIVING COLLAR
16 REMOVE DRIVING COLLAR
17 INSTALL FOLLOWER AND REMOVE
18 CUT PILE OFF EVEN WITH CAP
19 HOIST EXCESS PILE END AND LOWER ASIDE
20 DRILL HOLE THROUGH PILE OR CAP
21 POSITION PLATE TO PILE
22 INSTALL LARGE BOLTS
23 INSTALL LARGE NUT
24 PULL PILE UNDER CAP
25 APPLY PRESERVATIVE TO CUT END AND BOLT HOLES